



## SEQUENCE LISTING

RECEIVED

SEP 24 2002

TECH CENTER 1600/2900

<110> Murphy, Dennis  
Reid, John

<120> ALPHA-GALACTOSIDASE

<130> 09010-004004

<140> US 09/619,032

<141> 2000-07-19

<150> US 09/407,806

<151> 1999-09-28

<150> US 08/613,220

<151> 1996-03-08

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<212> DNA

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<212> DNA

<213> Thermococcus alcaliphilus

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<221> CDS

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Met Arg Ala Leu Val Phe His Gly Asn Leu Gln Tyr Ala Glu Ile Pro  
 1 5 10 15

aag agc gaa atc cca aag gtc ata gag aag gca tac atc cca gtc atc 96  
 Lys Ser Glu Ile Pro Lys Val Ile Glu Lys Ala Tyr Ile Pro Val Ile  
 20 25 30

gag aca ctg att aaa gaa gaa att cct ttt ggg ctc aac ata acg ggc 144  
 Glu Thr Leu Ile Lys Glu Glu Ile Pro Phe Gly Leu Asn Ile Thr Gly  
 35 40 45

tat acc tta aag ttc ctc ccg aag gat att ata gac ctc gtt aaa ggg 192  
 Tyr Thr Leu Lys Phe Leu Pro Lys Asp Ile Ile Asp Leu Val Lys Gly  
 50 55 60

ggc atc gcg agt gac ctg ata gag ata atc gga acg agc tac acg cac 240  
 Gly Ile Ala Ser Asp Leu Ile Glu Ile Ile Gly Thr Ser Tyr Thr His  
 65 70 75 80

gca ata ctc ccc ctc ctg ccg ctt agc aga gta gaa gca caa gtt cag 288  
 Ala Ile Leu Pro Leu Leu Pro Leu Ser Arg Val Glu Ala Gln Val Gln  
 85 90 95

aga gat agg gaa gtt aag gaa gag ctc ttc gag gtt tct cca aag gga 336  
 Arg Asp Arg Glu Val Lys Glu Glu Leu Phe Glu Val Ser Pro Lys Gly  
 100 105 110

ttc tgg ctg cca gag ctc gcc tat gac ccg ata atc cct gcc ata ctg 384  
 Phe Trp Leu Pro Glu Leu Ala Tyr Asp Pro Ile Ile Pro Ala Ile Leu  
 115 120 125

aag gac aac ggt tat gag tat cta ttc gcc gac ggg gag gcg atg ctt 432  
 Lys Asp Asn Gly Tyr Glu Tyr Leu Phe Ala Asp Gly Glu Ala Met Leu  
 130 135 140

ttc tca gct cat ctc aac tcg gcg ata aag cca att aaa ccg ctc tat 480  
 Phe Ser Ala His Leu Asn Ser Ala Ile Lys Pro Ile Lys Pro Leu Tyr  
 145 150 155 160

cca cac ctt ata aag gcc caa agg gaa aag cgc ttt agg tac atc agc 528  
 Pro His Leu Ile Lys Ala Gln Arg Glu Lys Arg Phe Arg Tyr Ile Ser  
 165 170 175

tat ctc ctt ggt ctc agg gag ctt agg aag gcg ata aag ctc gtt ttt 576  
 Tyr Leu Leu Gly Leu Arg Glu Leu Arg Lys Ala Ile Lys Leu Val Phe  
 180 185 190

gaa ggt aag gta acg cta aag gca gtc aaa gac atc gaa gcc gta ccc 624  
 Glu Gly Lys Val Thr Leu Lys Ala Val Lys Asp Ile Glu Ala Val Pro  
 195 200 205

gtt tgg gtg gcc gtg aac acg gct gta atg ctc ggc atc gga agg ctt 672  
 Val Trp Val Ala Val Asn Thr Ala Val Met Leu Gly Ile Gly Arg Leu  
 210 215 220

cct ctt atg aat cct aag aaa gtg gcg agc tgg ata gag gac aag gac 720  
 Pro Leu Met Asn Pro Lys Lys Val Ala Ser Trp Ile Glu Asp Lys Asp

225	230	235	240	
aac att ctt cta tac ggc acc gat ata gag ttc att ggc tat agg gac				768
Asn Ile Leu Leu Tyr Gly Thr Asp Ile Glu Phe Ile Gly Tyr Arg Asp				
	245	250	255	
att gca ggc tac aga atg agt gtt gag gga tta tta gag gtt ata gac				816
Ile Ala Gly Tyr Arg Met Ser Val Glu Gly Leu Leu Glu Val Ile Asp				
	260	265	270	
gag ctc aac tcg gaa ctg tgc ctt ccc tca gag ctg aag cac agt gga				864
Glu Leu Asn Ser Glu Leu Cys Leu Pro Ser Glu Leu Lys His Ser Gly				
	275	280	285	
agg gag ctc tac tta cgg act tcg agt tgg gca cca gat aag agc ttg				912
Arg Glu Leu Tyr Leu Arg Thr Ser Ser Trp Ala Pro Asp Lys Ser Leu				
	290	295	300	
agg ata tgg aga gag gac gaa ggg aac gca aga ctt aat atg ctg tcc				960
Arg Ile Trp Arg Glu Asp Glu Gly Asn Ala Arg Leu Asn Met Leu Ser				
	305	310	315	320
tac aat atg agg ggc gaa ctc gcc ttt tta gcc gag aac agc gat gca				1008
Tyr Asn Met Arg Gly Glu Leu Ala Phe Leu Ala Glu Asn Ser Asp Ala				
	325	330	335	
agg gga tgg gag ccc ctc cct gag agg agg ctg gat gcc ttc cgg gcg				1056
Arg Gly Trp Glu Pro Leu Pro Glu Arg Arg Leu Asp Ala Phe Arg Ala				
	340	345	350	
ata tat aac gat tgg agg ggt gaa aat ggg gaa cct tag				1095
Ile Tyr Asn Asp Trp Arg Gly Glu Asn Gly Glu Pro				
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 <211> 364  
 <212> PRT  
 <213> Thermococcus alcaliphilus

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 Glu Thr Leu Ile Lys Glu Glu Ile Pro Phe Gly Leu Asn Ile Thr Gly  
 35 40 45  
 Tyr Thr Leu Lys Phe Leu Pro Lys Asp Ile Ile Asp Leu Val Lys Gly  
 50 55 60  
 Gly Ile Ala Ser Asp Leu Ile Glu Ile Ile Gly Thr Ser Tyr Thr His  
 65 70 75 80  
 Ala Ile Leu Pro Leu Leu Pro Leu Ser Arg Val Glu Ala Gln Val Gln  
 85 90 95  
 Arg Asp Arg Glu Val Lys Glu Glu Leu Phe Glu Val Ser Pro Lys Gly  
 100 105 110  
 Phe Trp Leu Pro Glu Leu Ala Tyr Asp Pro Ile Ile Pro Ala Ile Leu  
 115 120 125

Lys Asp Asn Gly Tyr Glu Tyr Leu Phe Ala Asp Gly Glu Ala Met Leu  
 130 135 140  
 Phe Ser Ala His Leu Asn Ser Ala Ile Lys Pro Ile Lys Pro Leu Tyr  
 145 150 155 160  
 Pro His Leu Ile Lys Ala Gln Arg Glu Lys Arg Phe Arg Tyr Ile Ser  
 165 170 175  
 Tyr Leu Leu Gly Leu Arg Glu Leu Arg Lys Ala Ile Lys Leu Val Phe  
 180 185 190  
 Glu Gly Lys Val Thr Leu Lys Ala Val Lys Asp Ile Glu Ala Val Pro  
 195 200 205  
 Val Trp Val Ala Val Asn Thr Ala Val Met Leu Gly Ile Gly Arg Leu  
 210 215 220  
 Pro Leu Met Asn Pro Lys Lys Val Ala Ser Trp Ile Glu Asp Lys Asp  
 225 230 235 240  
 Asn Ile Leu Leu Tyr Gly Thr Asp Ile Glu Phe Ile Gly Tyr Arg Asp  
 245 250 255  
 Ile Ala Gly Tyr Arg Met Ser Val Glu Gly Leu Leu Glu Val Ile Asp  
 260 265 270  
 Glu Leu Asn Ser Glu Leu Cys Leu Pro Ser Glu Leu Lys His Ser Gly  
 275 280 285  
 Arg Glu Leu Tyr Leu Arg Thr Ser Ser Trp Ala Pro Asp Lys Ser Leu  
 290 295 300  
 Arg Ile Trp Arg Glu Asp Glu Gly Asn Ala Arg Leu Asn Met Leu Ser  
 305 310 315 320  
 Tyr Asn Met Arg Gly Glu Leu Ala Phe Leu Ala Glu Asn Ser Asp Ala  
 325 330 335  
 Arg Gly Trp Glu Pro Leu Pro Glu Arg Arg Leu Asp Ala Phe Arg Ala  
 340 345 350  
 Ile Tyr Asn Asp Trp Arg Gly Glu Asn Gly Glu Pro  
 355 360